



## Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).

## ZOOLOGY.

**The Cercaria Stage of Amphistomum.**—Dr. Albert Lang has completed<sup>1</sup> the life-history of *Amphistomum subclavatum*. The adult lives in the frog, the young in the small *Planorbis contortus* of Germany. He finds that the young become encysted upon the skin of the frog, and as this is eaten at the time of molting the young obtain access to the alimentary canal in that way. Lang also describes some points in the anatomy of the Cercaria. Especially interesting is the description of the excretory apparatus which cannot well be reproduced without a figure.

**Fecundation of the Eggs of Clinus argentatus.**—M. Frederic Gintel gives the following account of the habits of a fish known as *Clinus argentatus* during the deposition of the eggs and their fecundation by the male:

“The extrusion of the eggs occupies about half an hour, and they are deposited among the branches of a clump of seaweed, after which the female goes away and the male comes in his turn to the algæ to fertilize the eggs, of which he then becomes the guardian until they are hatched, driving away all the males and females that come near to the nest. If the latter, however, are gravid, he invites them to lay their eggs near those which he is already guarding. M. Gintel has seen a male fecundate successively, and to care for seven separate depositions by as many different females, at intervals of several days. —Revue Scientifique, Août, 1892.

**Preliminary Descriptions of New Fishes from the Northwest.**—In the November number of THE NATURALIST we described a few of the new species collected in western Canada. We shall here describe in a brief way the remainder of the new species. Full descriptions as well as a general report on the collections and a comparison between the fish faunas of the Red River of the North, the Saskatchewan, the Missouri, the Columbia, and the Fraser River will appear later, the MS. of the entire report being ready for the press.

1. *Pantosteus columbianus* E. & E.

Three specimens, 92–100 mm. Boise River, Caldwell, Oregon.

Related to *P. generosus*, the eye larger, the caudal longer. Head

<sup>1</sup>Berichte Naturf. Gesell. Freiburg vi, 81, 1892.

$4\frac{2}{3}$ – $4\frac{3}{5}$ ; D. II,  $11\frac{1}{2}$  or  $12\frac{1}{2}$ ; A I,  $8\frac{1}{2}$ ; scales, 16–19–80–100–15; eye,  $1\frac{1}{2}$ –2 in. snout,  $1\frac{1}{5}$  to  $1\frac{3}{5}$  in interorbital,  $3\frac{3}{4}$  to little more than 4 in head. All the fins pointed, the caudal lobes considerably longer than the head. Light brown, with indistinct clouds of darker.

2. *Notropis albeolus* E. & E.

One specimen 73 mm. long. Medicine Hat, Assiniboia.

Related to *N. maculatus* and *N. heterodon*. D.  $9\frac{1}{2}$ ; A.  $8\frac{1}{2}$ ; scales, 4–35–4; 15 scales before dorsal; teeth 4–4, 1, 2.

More slender than *heterolepis*; fins all small; origin of dorsal over ventral, equidistant from base of middle caudal rays and nares; scales closely imbricated, the exposed edges little higher than long. Lateral line decurved, the tubes developed on fewer than ten scales; ventral surface entirely white; a plumbeous lateral band overlaid with silvery; a dark vertebral line from occiput to caudal; sides with a few dark specks, dorsal surface more densely specked, the margins of the scales darker.

3. *Notropis heterolepis* E. & E.

One specimen 35 mm. long. Fort Quappelle.

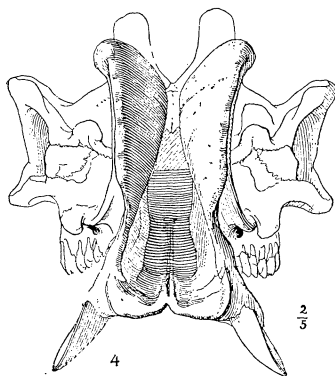
Related to *N. heterodon* and *N. anogenus*. D.  $9\frac{1}{2}$ ; A.  $9\frac{1}{2}$ ; scales 5–35–4; 15 scales in front of the dorsal; teeth 4–4; dorsal inserted equidistant between base of upper caudal rays and anterior margin of eye, behind the last ray of the dorsal; scales loosely imbricated, almost imbedded in front of the dorsal; scales along the median line with a deep notch near the middle of the posterior margin; the line nearly straight; a few black specks along the base of the anal, a dark line from anal to caudal; a dark band from tip of snout along the sides to the caudal; a conspicuous black curved line at the base of each scale of the lateral line; all the scales above the lateral band dotted with black; a narrow vertebral line from occiput to dorsal, a broad dusky band on the back between the dorsal and caudal, between this and the lateral band a lighter band; scales of back with dark markings; series of minute black dots along each ray of the dorsal, anal and anterior portion of pectoral; dorsal and caudal quite dark.

4. *Notropis reticulatus* E. & E.

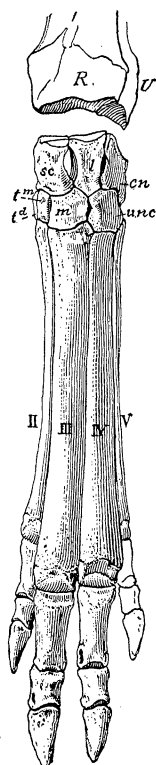
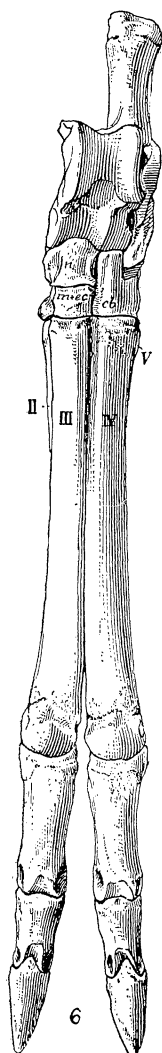
Twenty-four specimens from Fort Quappelle. Thirteen specimens, the largest 76 mm. from Brandon.

Related to *N. spectrunculus*, *fretensis*, *nitidus* and *topeka*. It approaches nearest to *N. fretensis* and *topeka*. From the former it differs chiefly in the larger scales in front of the dorsal and from the latter in the naked breast.

# PLATE II.



$\frac{2}{5}$



*Protoceras celer* Marsh.

Head 4, depth  $4-4\frac{1}{2}$ ; D.  $9\frac{1}{2}$  or  $10\frac{1}{2}$  (I or II,  $8\frac{1}{2}$ ); A.  $9\frac{1}{2}$  (II,  $7\frac{1}{2}$ ); scales 4 or 5-34-3 or 4; scales in front of dorsal, 12 or 14; teeth 4-4, hooked, with evident grinding surface; head pointed, broad above, and slightly convex; snout decurved, pointed, the lower jaw included; mouth oblique, the premaxillary on a level with the lower margin of the pupil or somewhat lower; maxillary reaching front of orbit; eye large, considerably longer than snout, 3 in head, greater than interorbital; origin of dorsal over ventrals, equidistant from tip of snout and base of upper caudal rays; longest ray scarcely extending beyond tip of last when depressed; anal low, the longest ray not extending beyond tip of last when fin is depressed, equal to snout and eye; ventrals reaching vent, slightly longer than the highest anal ray; pectorals little longer than head, less opercle; scales closely imbricated, the exposed edges considerably deeper than long in the largest specimens; lateral line decurved, complete; breast naked.

Dark streak from anal to caudal, lower parts otherwise plain; a dark vertebral line, a plumbeous band along the side: a faint spot at the base of the caudal about as large as the pupil; a series of spots along each side of the lateral line; upper parts of sides and the back profusely spotted, the edges of the scales are black, giving the whole part a reticulated appearance. The specimens from Quappelle are darker than those from Brandon.

5. *Notropis scopiferus* E. & E.

Many specimens from Winnipeg, Brandon, Fort Quappelle, Medicine Hat.

This species is evidently closely related to *N. luciodus*, from which it differs in having a conspicuous jet black spot about as large as the pupil at the base of the caudal fin.

Head  $4-4\frac{1}{2}$ ; depth  $4\frac{1}{2}$ ; D.  $9\frac{1}{2}$ ; A.  $10\frac{1}{2}$  (II,  $8\frac{1}{2}$ ); scales 6-36 to 42-4; 14-18 scales in front of the dorsal; teeth 2, 4-4, 2 grinding surface very narrow, on two teeth only; head heavy, compressed, flat above; snout blunt, much decurved; mouth small, little oblique; maxillary extending to eye; eye, 3 in head, little less than interorbital; lateral line complete, evenly and gently decurved to above origin of anal; a conspicuous black spot at the base of the middle caudal rays; a silvery lateral band, its dorsal margin distinct, color otherwise variable.

6. *Agosia falcata* E. & E.

Many specimens. Boise River, Caldwell, Idaho.

Scales larger and fins much longer than in *A. nubila*.

Head  $3\frac{3}{4}$ ; depth  $4\frac{1}{2}-5\frac{1}{4}$ ; D.  $11\frac{1}{2}$ ; A.  $9\frac{1}{2}$ ; scales 53-60, about ten above the lateral line; dorsal usually inserted directly over the origin

of the ventrals, the fin large, its anterior rays prolonged; origin of dorsal equidistant from base of middle caudal rays and nares; caudal deeply forked, the lobes acute,  $3\frac{2}{3}$  to  $3\frac{4}{5}$  in the length; anal rays  $4\frac{1}{3}$ – $4\frac{2}{3}$  in the length; ventrals always more posterior in position than in *nubila*, their tips extending to or past middle of base of anal; pectorals not reaching ventrals.

A dark band forward from eye; dark lateral band scarcely evident; silvery below; sides and back with numerous irregular, well-defined dark blotches; anal and sometimes ventrals with a dusky spot near base in front; dorsal and caudal faintly mottled; crimson spots on mandible, axil of ventrals and along base of anal.

7. *Agosia shuswap* E. & E.

Four specimens. Shuswap Lake, near mouth of Eagle River.

These specimens differ from *A. falcata* in a few characters; intergradations may be found, but none exist in our specimens.

Dorsal equidistant from base of middle caudal rays and posterior half of eye, inserted directly over origin of ventrals; lateral band well marked, otherwise as in *A. falcata*.

C. H. AND R. S. EIGENMANN.

**The Larynx of Batrachia.**—Dr. H. H. Wilder states<sup>2</sup> that Amphibia typically possess two pairs of laryngeal cartilages, an anterior pair of arytenoids, while the posterior, containing tracheal rings as well as the future cricoids, are best called tracheal elements. In *Proteus* and *Necturus* but one pair is present, while in many *Anura* the tracheal elements fuse in the median line, forming a sort of cricoid. Wilder suggests, arguing from position, innervation, and musculature, that the arytenoids are the fifth branchial arches and are further homologous with the so-called inferior pharyngeal bones of Teleosts. The tracheal elements, on the other hand, are new formations.

**The Kidney of Amphiuma.**—Dr. H. H. Field has studied the kidney-anlage in young *Amphiuma* and finds<sup>3</sup> that here as in the *Cæcilians* as described by Semon, there is a true metamerism. In his material (which has already served for other studies published in these pages<sup>4</sup>) the kidney reached back to the cloacal region, and it was possible to follow the different stages of formation of the canals. In the caudal region in the middle of each somite there was a wide, sharply

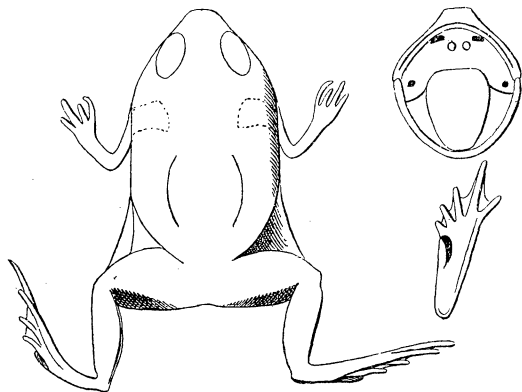
<sup>2</sup>Anat. Anzeiger, vii, 570, 1892.

<sup>3</sup>Verh. Deutschen Zool. Gesellschaft, 1892, p. 113.

<sup>4</sup>Hay, AM. NAT., xxii, p. 315, 1888; Kingsley l. c. xxvi, p. 671, 1892.

bent tube which communicated on the one hand by a nephrostome with the body cavity, and on the other empties into the segmental duct. Immediately above the nephrostome was the malpighian body. Going forward the looping of the duct becomes more extensive, and extends from wall to wall of the somite, but no anastomoses occur and the nephrostome is always in the middle of the somite. The ontogeny of this organ will doubtless prove of extreme interest, and this point goes to support Cope's thesis of the relationships of *Amphiuma* to the *Gymnophiona*.

**On a New Spade-Foot from Texas.**—*Spea laticeps* sp. nov. —Frontoparietal bones without fontanelle, smooth. Form of head and body short and wide. Width of head at tympana entering length of head and body two and one-quarter times. Front wide and perfectly flat, its width entering the length of the tibia two and one-quarter times, and considerably exceeding the width of an eyelid. Muzzle



*Spea laticeps* Cope, nat. size.

projecting little beyond lip; nostrils nearly terminal; canthus rostralis not marked; tympanum concealed; vomerine fascicles small, posterior to a line connecting the choanæ. The latter exceed in diameter the well-developed ostia pharyngea of the eustachian tubes.

The heel of the extended hind leg reaches the position of the tympanum. Its digits are half-webbed, three and one-half phalanges of the fourth digit remaining free. On closing the fingers the second a little exceeds the third in length, and the third exceeds the fifth. The integument of the superior and lateral surfaces extends to or beyond the middle of the femur. It is obscurely tubercular, and the inferior surfaces are smooth. There are no distinct glandular aggregations of

crypts. The length of the head and body is 38.5 mm.; length of head (axial), including tympanic region, 14.5 mm.; width of interorbital space, 6 mm.; of head at tympana, 18 mm.; length of fore leg from axilla, 19 mm.; length of hind leg from urostyle, 41 mm.; length of tibia, 12.5 mm.; of foot, 20 mm.

Color of superior surfaces brown, varied with large obscure spots of dark brown.

There are no pale longitudinal stripes, but the borders of the sacral region are pale and contract posteriorly, enclosing a narrow dark band above the urostyle. This pale outline is bordered externally by brown, and from this dark spots or bands extend transversely. There is a dark spot on the canthus rostralis; one on each side of the end of the muzzle, one below the eye, and one posterior to the eye. Gular region light yellow, rest of lower surface dirty white. Sheaths of hallux black bordered.

The single specimen of this species before me is smaller than the average *S. hammondi* proper, and is equal to the larger individuals of the *S. h. bombifrons*. Its color and the position of its vomerine teeth are more like those of the *Scaphiopus couchii*, but the proportions and the perfectly smooth cranial bones with free integument, distinguish it readily.

This interesting species approximates more closely the genus *Scaphiopus* than the known species of *Spea*. It was found by Mr. Wm. L. Black, of Prof. W. F. Cummins' party of the geological survey of Texas, on the journey between Seymour, in northwest Texas south of the Red River, and Austin. Mr. Black obtained on the same expedition three species of *Bufo*, viz., *B. compactilis*, *B. debilis* and *B. punctatus*. The range of the last named is thus much extended eastward. A specimen of the snake *Tropidoclonium lineatum* was also obtained, which extends its range much westward, Dallas having been the previous limit in this direction.—E. D. COPE.

**The Pedal Skeleton of the Dorking Fowl.**—Mr. G. B. Howes has been studying the pedal skeleton of two Dorking chicks, reaching conclusions somewhat different from those of Mr. Cowper, who has recently published studies of the adult structure. As a result of his anatomical researches Mr. Howes advances the theory that the two innermost digits of the Dorking fowl's pes are the product of the cleavage of the hallux, and adduces the recent discovery by Kükenthal of an undoubted occasional splitting of the Cetacean pollex as a support of this argument. Mr. Howes states also that the types of the



hexadactyle limb met with in the Amniota, as well as the pentadactyle pes of the Dorking fowl, is a monstrous formation, and that arguments deduced from their study in support of hexa- and heptadactyle limbs are premature. The author calls attention to the fact that inasmuch as no observed amphibian either living or extinct is known to have borne more than two phalanges upon its second digit, neither the sauropsidian nor the mammalian types can be derived from that of the Amphibia except by a process of intercalation such as there is no evidence to support. As involving the Mammalia, the force of the argument against a belief in the amphibian origin of the class it is second only to that of the discovery of the mammalian condition of the limbs in the Theromorous Reptiles.—*Jour. Anat. and Phys.*, Vol. xxvi.